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REMARKS

Claims 1-8 and 10-45 are currently pending in the subject application and are presently under consideration. A version of all pending claims is found at pages 2-9. Favorable consideration of the subject patent application is respectfully requested in view of the comments herein.

I. Rejection of Claims 1-3 and 11-13 Under 35 U.S.C. §102(b)

Claims 1-3 and 11-13 stand rejected under 35 U.S.C. §102(b) as being anticipated by Shinmura *et al.* (US 5,193,171). This rejection should be withdrawn for at least the following reason. Shinmura *et al.* fails to teach or suggest each and every limitation set forth in the subject claims.

A single prior art reference anticipates a patent claim only if it expressly or inherently describes *each and every limitation set forth in the patent claim*. *Trintec Industries, Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 63 USPQ2d 1597 (Fed. Cir. 2002); *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the ... claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (emphasis added).

The invention as claimed relates to a system and method adapted to *infer* what to do with an item, and in particular whether to archive and/or keep active an item based upon a cost-benefit analysis. Independent claim 1 recites the following limitation, *an inference system that inferentially determines whether to store the item in an active or archived state based at least in part upon information related to at least one of: a property of the item, a property of a user and extrinsic data*, and independent claim 11 recites a *means for inferring whether to store as active or archive the item based upon the determined utility of the item*. Shinmura *et al.* fails to teach or suggest these novel features of the claimed invention.

Shinmura *et al.* relates to a methodology for managing space on peripheral devices. The archival/migration strategy adopted by Shinmura *et al.* is purely static/rule-based. The Examiner incorrectly contends that Figures 3-4 and column 6, lines 34-47,

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describe an inference system that inferentially determines whether to store the item in active or archived state based at least in part upon information related to at least one of: a property of the item, a property of a user and extrinsic data. (See, Final Office Action dated April 13, 2004, pgs. 2-3). Applicant's representative avers to the contrary. Figures 3-4, illustrate a rudimentary rule-based methodology, wherein no inference is made. It is submitted that a conclusion based simply on whether a circumstance is true or false cannot be deemed an inference, but simply an inevitable consequence of antecedent causes. Further, with regard to column 6, lines 34-47, wherein it states:

If the request is a level 3 migration archive (decision 46), the file specified by the user is decided as a migration file (step 48) to execute a decision 49. If it is not a level 3 migration archive (decision 46), a file which has not been used as a migration file of an object user, that is, which has not been declared to be used, and is the oldest referenced file or has a large space capacity is selected with reference to a table having presence of a data set, file size and data access in a volume to execute a decision 49. Whether or not there is a file to be migrated is checked at a decision 49. If there is such a file, the file is then migrated from the active file 9 to the inactive pool 10 (step 50). Col. 6, lines 34-47.

The above-cited passage merely reinforces the point that no inference is made, as it simply discloses a set of IF-THEN conditions that when provided with a set of identical circumstances will unceasingly reach the same identical conclusion.

On the other hand, the subject invention relates to a system and method that *infers* what a user would like to have done with a particular item in connection with an automated utility-based archival system. In particular, the invention facilitates determining whether to archive or keep active an item based upon an inference-centric analysis (e.g. how to store an item based upon a cost-benefit analysis related to maintaining the item in an active state). The archival decision-making is predicated in part upon an inference as to a user's future need or desire to access the item. Moreover, the claimed invention provides for determining relative costs associated with keeping an item active versus benefits related to quick and easy access to the item based in part upon a user's probabilistically determined perceived future need. More particularly, the inference can employ a probabilistic or statistical-based cost-benefit analysis – where

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cost of maintaining an item in an active state can be measured in terms of the item's size and the benefit can be based on a probabilistic determination that the user will desire to access the item in the future. A formal probabilistic analyses in connection with the claimed invention makes feasible the use of expected utility and a formal value-density. Shinmura *et al.* does not teach or suggest such claimed features of applicant's invention.

Rather, Shinmura *et al.* discloses a methodology of managing space on storage devices, peripheral storage devices and ancillary apparatuses. The archival/migration strategy disclosed in Shinmura *et al.* is based upon past user access of a particular file, relative size of that file with respect to total size of an active volume pool and other files presently residing on the active volume pool, and user-declarations regarding file access. Shinmura *et al.* fails to disclose or suggest inferring (e.g., a probabilistic-based or statistical-based scheme for determining) whether an item is a candidate for migration let alone performing such inference based upon a determined utility of the item. There is no teaching or suggestion by Shinmura *et al.* of employing an *inference-based approach* to archival decision-making as in applicant's claimed invention. As noted *supra*, Shinmura *et al.* teaches a rudimentary rule-based archival scheme wherein if the number and/or size of files exceeds a certain threshold than a subset of such files are migrated from an active store to either a secondary spare store (which is employed as an extension of the active store) or an inactive store. The archival decision-making is based on static data (e.g., user declaration that file is in active use, age of file, period of non-use of the file...). There is no notion of employing a sophisticated inference-based approach (which performs a probabilistic or statistical-based analysis) in connection with predicting how a user would likely want an item treated. The *inference* based system of applicant's invention provides for a highly dynamic system with notions of temporal sensitivity as well as user-specific customization that could not be achieved by the system of Shinmura *et al.* For example, the subject invention can address "one-shot" items (e.g., notification from employee of calling in sick) that have been most recently accessed and are of small size but through inference determine that the user will likely not want to open up such item again (or at least not in the relevant future) and thus immediately migrate such item to an inactive store (for storage and access at a later date if needed). The system of

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Shinmura *et al.* – in part because of its monolithic design – would keep such item active because it was recently accessed and of small size.

In view of the foregoing, it is readily apparent that Shinmura *et al.* does not teach or suggest *employing inference in connection archival decision-making* as in the subject invention as recited in independent claims 1 and 11, and respective claims that depend there from claims. This rejection should be withdrawn.

II. Rejection of Claims 1-4 and 11-13 Under 35 U.S.C. §102(e)

Claims 1-4 and 11-13 stand rejected under 35 U.S.C. §102(e) as being anticipated by Sakaguchi *et al.* (US 6,199,103). Withdrawal of this rejection is respectfully requested for at least the following reasons. Sakaguchi *et al.* does not teach or suggest all the limitations set forth in the subject claims.

The Office Action asserts that Sakaguchi *et al.* teaches the limitations set forth in independent claims 1 and 11, and in particular the inference system. The Examiner directs applicant's representative to Figures 1-5 and corresponding portions of Sakaguchi *et al.*'s specification. However, Sakaguchi *et al.*, like Shinmura *et al.* above, simply sets forth a deterministic methodology.

Sakaguchi *et al.* relates to a conventional junk email filtering system that uses *keyword vectoring* to distinguish between "junk" and "non-junk" emails. Keyword vectoring analysis determines whether an item is similar enough to a seed representative junk email to be classified as junk, in which case the classified junk email is discarded. Keyword vectoring, unlike the stochastic determination undertaken by the claimed invention, merely calculates similarities between data items, and as is apparent is purely deterministic, since given a set of junk and non-junk emails, containing appropriate keywords, the system as disclosed by Sakaguchi *et al.* will invariably and without discrimination classify respective emails as being junk or non-junk. The invention as claimed on the other hand, through the use of a probabilistic methodology, is capable of inferring, based upon data other than merely the contents of the document, whether to archive or keep active a particular item. Thus it is submitted, Sakaguchi *et al.* fails to provide the *inference* system as recited in the subject claims, and accordingly it is requested that the rejection of independent claims 1 and 11, and associated dependent

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claims, be withdrawn.

III. Rejection of Claims 4-6, 14-21, 23-28, 30-37 and 39-45 Under 35 U.S.C.

§103(a)

Claims 4-6, 14-21, 23-28, 30-37 and 39-45 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shinmura *et al.* in view of the article entitled "Continual Computation Policies for Utility-Directed Prefetching" by Horvitz (hereinafter 'Horvitz'). It is requested that this rejection be withdrawn for at least the following reasons. Shinmura *et al.* and Horvitz, either alone or in combination, fail to teach or suggest all the limitations set forth in the subject claims, and further, there is no motivation to combine the references other than *via* employment of applicant's specification as a 20/20 hindsight-based roadmap to achieve the purported combination.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) *must teach or suggest all the claim limitations*. See MPEP §706.02(j). The *teaching or suggestion to make the claimed combination* and the reasonable expectation of success *must be found in the prior art and not based on the Applicant's disclosure*. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). An examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done. *Ex parte Levengod*, 28 USPQ2d 1300 (P.T.O.B.A.&I. 1993).

As discussed *supra*, the invention as claimed relates to a system and method that *infers* whether to store actively, archive or discard items based upon at least one of the determined probabilities and the value densities. As the Examiner acknowledges, Shinmura *et al.* is silent regarding probabilistic computations to ascertain a probability of

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user access. In recognition of the omission in Shinmura *et al.*, the Examiner attempts to utilize Horvitz to cure the defect.

Horvitz is direct towards utilizing prefetching policies to minimize network latencies inherent with low-bandwidth local communication links to the Internet. In particular, the emphasis in Horvitz is upon using idle time to predictively and automatically identify Internet content of interest to a particular user based upon that user's prior browsing and searching activity, and *a priori* download such content based upon a prediction of the user's relative likelihood of future access. Nowhere in Horvitz is it taught or suggested that the probabilistic methodology disclosed therein can be utilized in the context of an archival means.

It is submitted therefore that there is no motivation to combine Shinmura *et al.* with Horvitz, other than *via* employment of applicant's specification as a 20/20 hindsight-based roadmap to achieve the purported combination. In order to substantiate the necessary motivation, the *cited documents themselves must teach or suggest the desirability of the purported combination*. See, *Amgen, Inc. v. Chugai Pharmaceutical Co. Ltd.*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1996). Since neither Shinmura *et al.* nor Horvitz specifically teach or suggest the utilization of probabilistic techniques in connection with the archival of data items, it would appear the Examiner is basing the rejection on an assertion that it would have been obvious to do something not suggested in the art, but rather on the advantages disclosed in applicant's specification. This type of rational has been condemned by the CAFC. See, *Panduit Corp. v. Dennison Manufacturing Co.*, 1 USPQ2d 1593 (Fed. Cir. 1987). Thus, since Shinmura *et al.* and Horvitz are silent regarding the utilization of probabilistic techniques in context of an archival system and method, it is respectfully requested that the rejection of claims 4-6, 14-21, 23-28, 30-37 and 39-45 be withdrawn.

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IV. Rejection of Claims 7-8, 10, 22, 29 and 38 Under 35 U.S.C. §103(a)

Claims 7-8, 10, 22, 29 and 38 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shinmura *et al.* in view of Horvitz as applied to claim 6 above, and further in view of Sakaguchi *et al.* It is respectfully requested that this rejection be withdrawn for at least the following reasons. Claims 7-8, 10, 22, 29 and 38 depend from independent claims 1, 21, 24 and 33 respectively, and Horvitz and Sakaguchi *et al.* fail to make up for the aforementioned deficiencies presented by Shinmura *et al.* with respect to the subject independent claims. Accordingly, withdrawal of the rejection and allowance of the subject claims is respectfully requested.

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CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

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